Environment, Ecology, and Interaction in Japan, Korea, and the Russian Far East: the Millennial History of a Japan Sea Oikumene

C. MELVIN AIKENS, IRINA S. ZHUSHCHIKHOVSKAYA, AND SONG NAI RHEE

INTRODUCTION

THIS ARTICLE MAKES THE CASE THAT THE SEA OF JAPAN, or East Sea as it is known in Korea,[1] is the center of a distinctive cultural zone within which interacting human societies have long shared both ecological and technological patterns and trajectories, and correspondingly have reacted in like ways to historical influences reaching them from outside. The account to follow attends to details of environmental settings, archaeological assemblages, and chronology in order to demonstrate the continuity and interplay of ecological and culture-historical factors that has characterized this region from the late glacial age into the modern era and given it an identity all its own. We argue that this "Japan Sea Oikumene" (Greek *Oikos*, "house"), is an interactive culture-historical unity in its own right, rather than an aggregate of "peripheries" to adjacent Chinese, steppe, and boreal cultures, as historians and earlier archaeologists have typically perceived it (Kuzmin and Orlova 1998). Table 1 offers a schematic overview of the relationships that are the subject of this article.

The wooded mountains, river valleys, and seacoasts of Korea, Japan, and the Russian Far East have been treated by historians since classical times as "barbarian land" that was ultimately "civilized" to varying degrees by Chinese influence. In his pioneering archaeological summary of the region Chard (1974:xv, 56–108) presented a much deeper picture of these Northeast Asian cultures. He gave them a history and roots of their own as deep as China's, but continued to identify them as a congeries of individual entities, "independent hearths of culture" that were defined by external influences from bordering regions, or were perhaps simply the edges of those regions. Current research continues to recognize variation and distant relations, but also stresses environmental and developmental factors within the region as a whole (Nelson 2006:4–8).

C. Melvin Aikens is a Professor at the University of Oregon Department of Anthropology and Museum of Natural and Cultural History in Eugene, Oregon. Irina Zhushchikhovskaya is affiliated with the Institute of History, Archaeology and Ethnology of Peoples of Far East, Russian Academy of Sciences, Far Eastern Division, Vladivostok. Song Nai Rhee is affiliated with Northwest Christian University and the University of Oregon Museum of Natural and Cultural History.

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Table 1. Parallel cultural sequences around the Sea of Japan/East Sea (Akazawa et al. 1980, Bae 1992, Bae and Kim 2003, Derevianko et al. 2006, Ikawa-Smith 2004, Rhee et al. 2007, Zhushchikhovskaya 2005).

YEARS CAL.	JAPAN	KOREA	RUSSIAN FAR EAST
B.P.			
	interacting polities adv. pottery, metals mixed agriculture	interacting polities adv. pottery, metals mixed agriculture	interacting polities adv. pottery, metals mixed agriculture
5,000			
	pithouse villages elaborated ceramics	pithouse villages	pithouse villages
	fishing, sea mammals	fishing, sea mammals	fishing, sea mammals
10,000	shellmounds	shellmounds earliest pottery	shellmounds
	stemmed biface pts		stemmed biface pts
15,000			
	earliest pottery wedge-shaped & conical microcores	wedge-shaped microcores biface pts	earliest pottery wedge-shaped microcores foliate
20,000	foliate biface pts foliate bifaces side-blow flakes	ovate bifaces	biface pts foliate bifaces
		end-struck blades broad	end-struck blades broad
25,000	end-struck blades large bladelike flakes	flakes discoid cores	flakes discoid cores
AT Tephra	broad flakes		levallois cores choppers, skreblos
30,000	choppers, flaked & edge-ground flat cobble axes		

With the progress of research, it is now possible to describe the Sea of Japan environs as a distinctive ecological and cultural interaction sphere (cf. Caldwell 1958) that has developed a long-lived and "specific, preponderant, interwoven, definable mass of culture" (Kroeber 1952:395) and has interactively sustained its unity over thousands of years. As Barnes (1993:7) stresses, the developmental trajectory of the lands east and north was much different from that of the China mainland until very late in the cultural history of what we now call East Asia. We essay here to present this trajectory in its own terms as the growth of a "Japan Sea Oikumene" that has long maintained its own organic and interactive unity. It is a unity in many ways analogous to those that developed over thousands of years in western Europe and eastern North America.

INTERACTIVITY AMONG LATE PLEISTOCENE CULTURES OF THE JAPAN/EAST SEA BASIN

Upper Palaeolithic cultural remains can be traced from late Pleistocene times across the Russian Far East, Korea, and Japan, as the following review will show, with technologically and typologically similar lithic industries documenting thou-

sands of years of cultural continuity and sharing across the Japan Sea Oikumene as a whole. Highly problematic and unconfirmed sites attributed to Lower or Middle Palaeolithic times, such as Filimoshiki and Diring Yuriakh in the Russian Far East; Sozudai, Hoshino and a series of fraudulent claims exposed in Japan; and Chongok-ni in Korea, among others, have been elsewhere considered and are not addressed here as credible pre–Upper Palaeolithic finds.

Within the Russian Far East, the Upper Palaeolithic horizon is identified by large blades and bladelike flakes made from flat, Levallois-like prepared cores, followed by leaf-shaped biface knives and points associated with wedge-shaped microcores and blades (Brantingham et al. 2004; Derevianko 1983; Derevianko and Tabarev 2006:44–51; Derevianko et al. 2004; Derevianko et al. 2006:63–73). An early Upper Palaeolithic Ustinovka culture is defined from the Zerkal'naya River Valley in Primorye, where the Ustinovka 7 site has yielded early blades and cores that are assigned on pollen and other environmental evidence to a cold phase of the Karginsky Interstadial, about 33,000–30,000 B.P. Nearby Ustinovka 1 has yielded both early large core and blade assemblages and subsequent microblade assemblages that together span a time range of 27,500–17,150 B.P. (Kononenko 2001; Kononenko et al. 2001; Krupyanko and Tabarev 2003).

A problematic but potentially pre-Ustinovka occupation may be attested for Primorye in Stratum 4 of the Geographic Society Cave north of Vladivostok, where the bones of cave lion or tiger, brown bear, mammoth, rhino, horse, bison, and deer have been found along with a small number of rather nondescript worked stone flakes and cores (Derevianko and Tabarev 2006:44). Some 14 radiocarbon dates on bone from the cave range from greater than 40,000 years to about 36,000 B.P., but the association of artifacts and dates is unclear (Kuzmin 2006:20).

In the Amur River region farther north, the Ust Ulma 1 and 2 sites on the Selemdzha River, a tributary of the Lower Amur, define a Selemdzha culture that parallels the Ustinovka (Derevianko et al. 2006:65–68). The assemblages show a progression from early flat, discoid, and levallois cores associated with choppers, skreblos, and end-struck blades, through increasingly well-defined wedge-shaped blade cores, broad leaf-shaped bifaces and willow-leaf bifaces, to the appearance of large retouched blades, micro-prismatic cores, leaf-shaped arrowpoints, and a type of stemmed point (Table 1).

The earliest ^{14}C date obtained at Ust Ulma 1 was about 23,100 B.P. for a level immediately underlying the artifacts, and shows that occupation began during the last glacial maximum. The latest date of about 14,950 B.P. was made directly on carbon from pottery found in the upper level of the deposit, and shows the site occupation continuing into the early Neolithic and the time of the Pleistocene-Holocene transition.[2] The site of Khaya 4, near the mouth of the Bol'shaya Khaya River on the Sea of Okhotsk, also shows large flat cores and lanceolate or sub-triangular biface points. It is not ^{14}C dated but seems typologically to overlap the earlier part of the Ust Ulma time range (Slobodin 2006:56).

On the Sea of Japan's northeastern shore, palaeogeographic data show that Sakhalin and Hokkaido comprised a single large peninsula during the low sea levels of the last glacial maximum (Vasilevsky 2006:75–78). On the Pacific side all its major rivers flowed into a large bay of the Okhotsk Sea, while on the west was another great bay where the Amur River, at the end of a long, many-fingered path from deep in the continental interior, debouched into the Japan

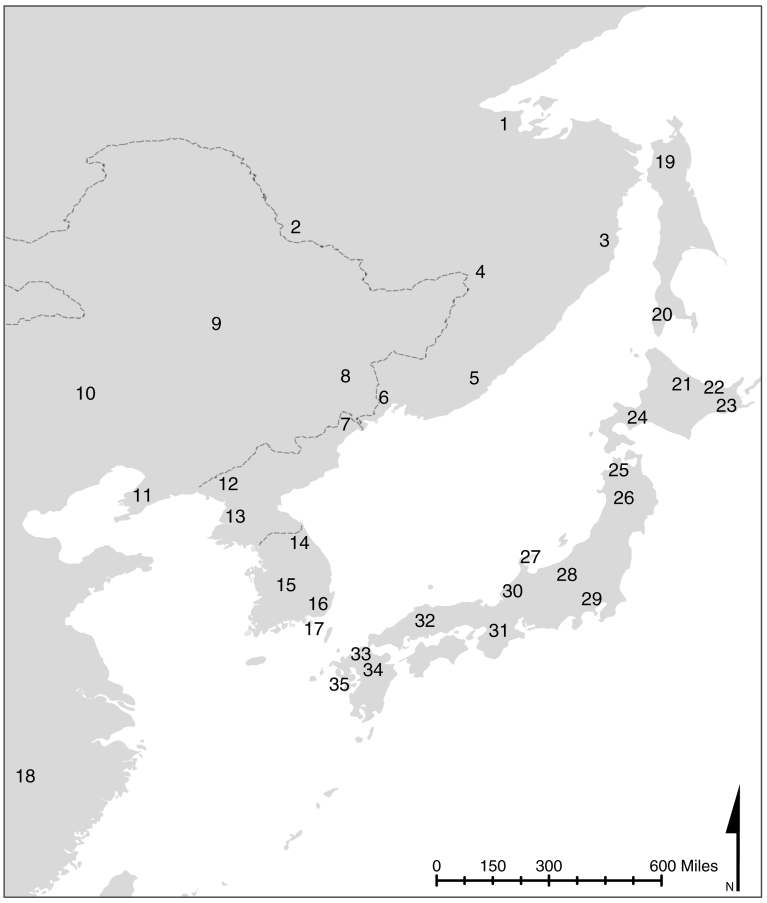

Fig. 1. Map of Japan Sea Oikumene sites and localities mentioned in text.
1: Khaya 4, Malyshevo; 2: Ust Ulma 1&2; 3: Khummy, Gasya, Gosyan, Gromatukha, Osipovka; 4: Kondon, Uril'skaya; 5: Ustinovka 1&3, Chernigovka 1, Rudnaya Pristan, Chertovy Vorota; 6: Zaisanovka, Boisman 1&2, Krounovka 1, Yankovskaya, Sinii Gai, Lidovka; 7: Sopohang; 8: Xin-kai-liu; 9: Ang-ang-shi; 10: Xiajiadian; 11: Xiao-zhu-shan, Guo-jia-cun; 12: Yongyeon-dong, Jitap-ni, Namgyeong, Hogok; 13: Lelang, Taifeng; 14: Osan-ri; 15: Suyanggae, Mandal-ni, Sokchang-ni, Songguk-ni; 16: Tongsamdong; 17: Kosanni; 18: Xianrendong, Miaoyan, Yuchanyan; 19: Imchin River; 20: Ogonki, Yuzhno-Sakhalinsk; 21: Shirataki, Tachikaru-Shunai, Shukubai-Sankakuyama; 22: Abashiri; 23: Kushiro; 24: Usu, Kita-kogane; 25: Odai Yamamoto, Sannai Maruyama; 26: Etchu-yama, Odaino; 27: Mawaki; 28: Togariishi, Yosukeone, Idojiri; 29: Nakazanya, Nogawa, Musashi-dai, Hakeue, Takaido Higashi, Suzuki, Iwajuku, Isoyama, Musashino Koen, Shimbashi, Maehara, Nishinodai B, Heidaizaka, Kurihara, Natsushima; 30: Torihama; 31: Yamato Rokugofun; 32: Nanu-kaichi, Toya Daichi, Konosu; 33: Fukuoka; 34: Imakawa, Yoshinogari; 35: Magarino, Fukui.

Sea basin far south of its present mouth. Sakhalin-Hokkaido, which included both interior mountains with fast-flowing rivers, and swampy coastal lowlands punctuated by great river mouths, then presented a north-south gradient from tundra to forest-tundra to mixed forest.

Among quite numerous Upper Palaeolithic localities on this long Ice Age peninsula, Ogonki 5, on the Lutoga River, is designated the regional type-site (Vasilevsky 2006:76). Its rich palimpsest deposit, only 0.7 m deep but excavated

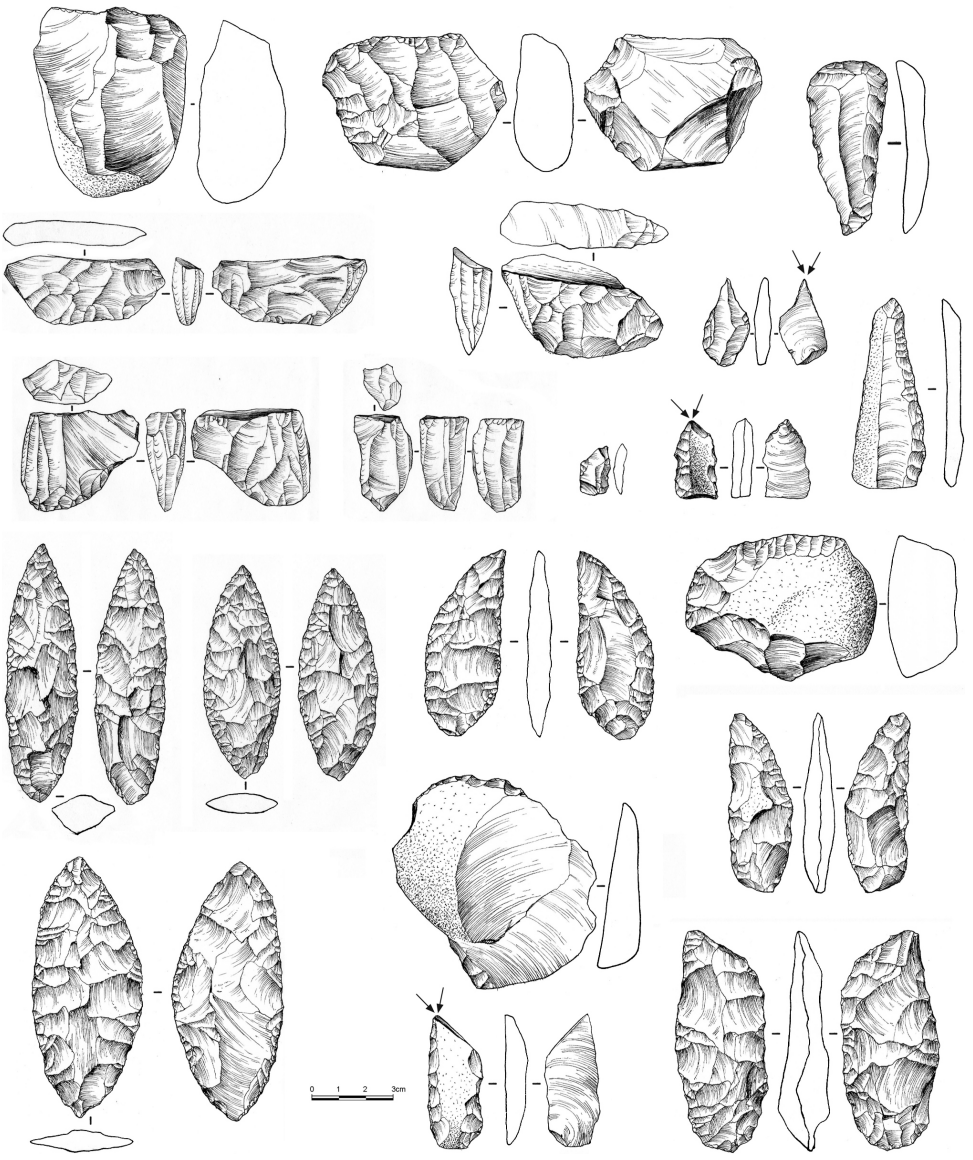

Fig. 2. Upper Paleolithic blade cores, blades and flakes with retouch, bifacial points and knives, burins, scrapers, and skreblos from Ust Ulma 1, layer 2a (based on Derevianko et al: 2006 : Fig. 4.9).

and recorded with great care, shows three Upper Palaeolithic cultural horizons, overlapping temporally with the late Pleistocene record from Ust Ulma and continuing into the early Holocene. Layers 2b and 3 gave evidence of three hard-trampled house floors, one having two fire pits and the others one each. Five ^{14}C dates from these layers cluster between about 23,225 and 21,430 B.P., and from the associated artifacts two closely related cultural horizons are identified. The earlier Horizon 3 assemblage included end-struck macrocores, wedge-shaped or boat-shaped microcores, amorphous cores, macroblades, microblades, burins, end

scrapers, and points. A partially ground basalt adze, and adze/scrapers of slate were also found. The subsequent Horizon 2 assemblage included medium and long knife-like blades, points, knives, burins and end-scrapers made on blades, and wedge-shaped microcores. Horizon 1, recognized from Ogonki's upper 20 cm or so, included microblades and small, medium, and long blades, including some made into burins, end-scrapers, and knives. Wedge-shaped and boat-shaped microcores also appeared, while tools made on flakes included stemmed biface points, knives, burins, gravers, and end-, side-, and discoid scrapers, among other items.

Late Pleistocene Upper Palaeolithic cultures are well represented in Japan, which has a much fuller history of research than either the Russian Far East or Korea. The earliest Japanese assemblages include elongate blade-like flakes, amorphous flakes, and often large, heavy choppers or axes made by flaking and grinding the edges of flattened cobbles. Scattered finds from Kyushu in the south to Tohoku in the north are placed in time by their stratigraphic context beneath the Aira-Tanzawa Tephra (AT), which erupted from the Aira Caldera in southern Kyushu about 28,000 B.P. and settled over a vast area of Japan and adjacent China, Korea, and the Russian Far East. On Tanegashima Island, off Kyushu's southern coast, such assemblages at Tachikiri and Yokomine C are covered by the more localized Tane IV Tephra, dated to about 32,000 B.P. Bones of anatomically modern humans from the Ryukyu chain south of Kyushu have also been dated to about 28,000 B.P. at Pinza-Azabu Cave on Miyakojima, and about 34,000 B.P. at Yamashita-cho Cave 1 on Okinawa, but no artifacts are known to be associated (Ikawa-Smith 2004:290–292).

Japan's large edge-ground and polished choppers and associated tools, for which southern connections seem likely, are followed by a well-defined Upper Palaeolithic horizon of clearly northern cast. This includes prepared cores, large elongate flakes and blades, microblades and microcores, and leaf-shaped bifaces and points clearly related to those seen in the Russian Far East. There are many examples, ranging from Tachikaru Shunai and Shukubai-Sankakuyama in Hokkaido to a large set in western Tokyo and Gumma that includes Nakazanya, Nogawa, Iwajuku, Isoyama, Musashidai, Hakeue, Takaido Higashi, Suzuki, Hinnatabayashi B, Kannoki, and others. Another set in western Honshu includes Nanukaichi, Toya Daichi, Konosu, and others, and Magarino in Kyushu. In this region there also developed a side-blow flake technology that produced elongate flake blanks of similar proportions to end-struck blades (Ikawa-Smith 2004:290–295).

A study of the rich western Tokyo site cluster by Akazawa et al. (1980) recognizes a Phase 1 characterized by heavy core tools, a Phase 2 dominated by tools made on elongate flake and blade blanks that were produced from well-prepared cores, a Phase 3 dominated by microcore and microblade production, and a Phase 4 that foreshadows the earliest features of Jomon culture. The authors did not propose specific dates for these phases, but chronological evidence obtained later suggests a beginning for Phase 1 perhaps as early as 35,000 B.P. and surely before 28,000 B.P., with Phase 2 bracketed between about 28,000 B.P. and 17,000 B.P. Microblades, microcores, and rather large leaf-shaped biface points like those appearing in Phase 3 at Suzuki, Nishinodai Loc. B, Maehara, Shimbashi, and Nogawa have been well dated in northern Honshu at Etchuyama A and A′ to

about 17,150/15,750 B.P. With the appearance of pottery in Japan after about 16,000 B.P., Phase 4 of this sequence belongs to the time of the Pleistocene-Holocene transition, treated in a following section (Ikawa-Smith 2004; Kato 1975; Oda and Keally 1975).

During the Late Pleistocene, and particularly around the time of the last glacial maximum about 22,000 B.P., the Japanese archipelago was more accessible from the continent than it has been in Holocene times. Sea level histories and bathymetric mapping show that that the Japan/East Sea and Sea of Okhotsk lay approximately 110–130 m below the modern level during the LGM, linking Sakhalin and Hokkaido, narrowing the Tsugaru Strait between Hokkaido and Honshu and the Tsushima Strait between Korea and Japan, and exposing a subaerial plain off Russian Primorye that was 40 to 100 km wide and covered in accumulated sediment deeply cut by eroding rivers (Ikawa-Smith 2004: Figs. 10.1, 10.2; Korotky 1976; Vasil'evsky 2006: Fig. 5.1). Large game animals such as mammoth, giant deer, bison, and horse, widely present in Northeast Asia at this period, would have flourished in the grassland-tundra setting of the new lowland plains, while their fossil presence in the Japanese islands shows definitively that they found places to cross.

In Korea, Palaeolithic research is still in its infancy. The early record is limited and not yet well controlled, but artifacts of clearly Upper Palaeolithic types are nevertheless known from several sites. Mandal-ni, in the northeast, has yielded wedge-shaped microcores and a disc-shaped microcore, along with some points and other tools made of split deer antler. In central Korea Sokchang-ni has given evidence of Aurignacian-like blades, an ovate biface, and wedge-shaped microcores, all found around a hearth that was radiocarbon dated to about 25,000 B.P. (Bae 1992: 19). The Suyanggae site in south-central Korea has produced an impressive assemblage of end-and-side scrapers made on blades, wedge-shaped cores, and bifaces (Yi 2002). All these finds link the Korean peninsula to late Pleistocene assemblages known from Primorye and beyond in the Russian Far East, and in Japan from Kyushu to Hokkaido (Y. J. Lee 1999).

We conclude this review of Upper Palaeolithic interactivity across the Japan/East Sea basin, as shown by technologically similar lithic industries, with some brief notes on a differently based demonstration of long-distance contacts that is afforded by the geochemical tracing of obsidian. Tools made of obsidian from Hokkaido's Shirataki and Oketo sources are found at archaeological sites in Sakhalin as much as 1000 km away, and dates from the Ogonki 5 site in southern Sakhalin show that Hokkaido obsidian had reached there by about 19,000 B.P. Farther south, obsidian toolstone from many Upper Palaeolithic sites of the Tokyo area has been traced to distant sources in the high mountains of central Japan in one direction and Kozujima Island in the other. This little island, in the Pacific Ocean about 150 km south of Tokyo, was separated from the nearest shore by some 30 km even during the lowest sea levels of the last glacial maximum. Artifacts of Kozujima obsidian, found beneath the AT horizon in the Tokyo area Musashidai site, show that long-distance transport of this valued toolstone predates 28,000 B.P., while radiocarbon dates indicate it may be as old as 30,000–32,000 B.P. (Ikawa-Smith 2004: 297; Suzuki 1974). These finds are also an important demonstration that by that period people were well able to travel long distances on the ocean by canoe or raft.

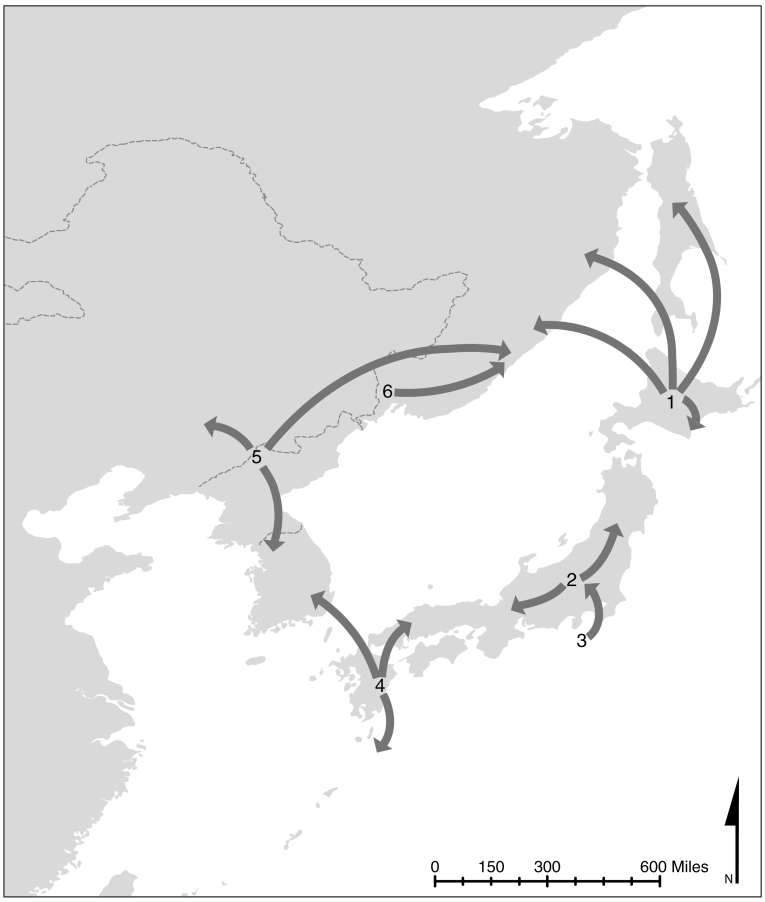

Fig. 3. Map of Upper Paleolithic and later obsidian sources and transport within the Japan Sea Oikumene. 1: Hokkaido sources; 2: Central Honshu sources; 3: Kozujima; 4: Kyushu sources; 5: Paektusan Volcano, Korea; 6: Primorye Basalt Plateaus.

Much research is still to be done on continental obsidians, but the Shkotovo and Shufan basalt plateaus of southern Primorye have produced high-quality obsidian that is widely found as pebbles in their river gravels. Kuzmin (2006:170) maps 21 archaeological sites that contain these obsidians, which had probably been fluvially transported. However, it is also known that the great Paektusan volcano, on Korea's northeastern border with China, provided much obsidian to the Korean peninsula, Northeast China, and the Russian Far East. Kuzmin's map shows 14 archaeological sites in Primorye where Paektusan obsidian was traded up to 700 km from its source. Overall, current data show that long-distance obsidian trade and transport is effectively as old as Upper Palaeolithic occupation itself in Northeast Asia, reaching back over 30,000 years and surely functioning as a powerful medium of cultural contact, knowledge-sharing, and formation of intergroup social relationships on a continuing basis (Ikawa-Smith 2004; Kuzmin et al. 2002, 2008; Suzuki 1974).

THE LATE PLEISTOCENE–EARLY HOLOCENE TRANSITION AROUND THE SEA OF JAPAN AND THE ORIGIN OF POTTERY IN NORTHEAST ASIA

During the Pleistocene-Holocene transition of about 16,000–11,000 B.P. (Brigham-Grette et al. 2004:34–40) and continuing into Early Holocene times, rising sea levels were progressively creating new, much indented coastlines all around the Sea of Japan/East Sea, forming new estuaries, bays, and inter-tidal shallows that eventually teemed with crustaceans, fishes, sea mammals, birds, and aquatic plants. Climatic warming proceeded erratically, in fits and starts, but the overall trend was to improve both littoral and terrestrial growing conditions and to bring biotically diverse and productive deciduous forest northward. Land-based hunting and river fishing, already documented well back into glacial times in the Russian Far East, continued in evidence (Vasil'evsky 1998).

A precise borderline cannot realistically be drawn between the Late Pleistocene and Early Holocene cultures of the Japan/East Sea area, because the ecological and cultural processes seen as deciduous woodland moved northward were time-transgressive, but the Early Holocene is best viewed as a culmination of developments entrained earlier. It was in this new climatic/biotic context that pottery vessels first appeared, and by the early Holocene of about 10,000 B.P., they were already long in use throughout Northeast Asia for cooking and storing the broad range and abundance of plants, small animals, fish, shellfish, crustaceans, and other foods increasingly available in the mixed woodlands or along the newly emergent littoral. At the same period, the continuance from preceramic times of blade and microblade tools and stemmed points gives evidence that earlier industrial and subsistence practices were also carried over (Aikens 1992:100–101; Aikens and Akazawa 1996:218–224; Harunari 2001; Keally et al. 2003; Kuzmin and Shewkomud 2003; Soffer 1996; Tsukada 1986; Vasil'ev 2001; Vasil'evsky et al. 1997; Vostretsov 2006:25–31; Zhushchikhovskaya 2005:28–29).

Temporal trends in the growth of pottery use and its relationship to changing postglacial environment are best shown in Japan, where relevant data are most abundant. Excavations during the 1950s and 1960s at Natsushima Shellmound on Tokyo Bay yielded what remained for a long time the oldest ceramics known anywhere in the world, placed by the then-new radiocarbon dating method at about 10,850 B.P. (Sugihara and Serizawa 1957). Subsequent work far to the south at Fukui Cave in Kyushu, overlooking Nagasaki Bay, revealed pottery vessels associated with late Palaeolithic microblades and microcores in a complex dated to about 15,250 B.P. (Kamaki and Serizawa 1965). With the progress of subsequent research, many early ceramic sites are now known throughout Japan, and a recent review by Keally et al. (2003) provides 97 radiocarbon age measurements from such sites.

Pottery Phase One in Japan is dated about 16,350–15,250 B.P., Phase Two about 15,250–13,350 B.P., Phase Three about 13,350–11,350 B.P., and Phase Four about 11,350–10,150 B.P. The researchers' tabulation of pottery sherds from 52 sites shows that in Phase One 12 sites yielded from 2 to 78 potsherds, in Phase Two 17 sites yielded 65 to 2041 potsherds, in Phase Three 15 sites yielded 42 to 5906 potsherds, and in Phase Four 10 sites yielded 3266 to 33,000 potsherds (Fig. 4). The steep ascent of the curve with the arrival of Holocene times is remarkable.

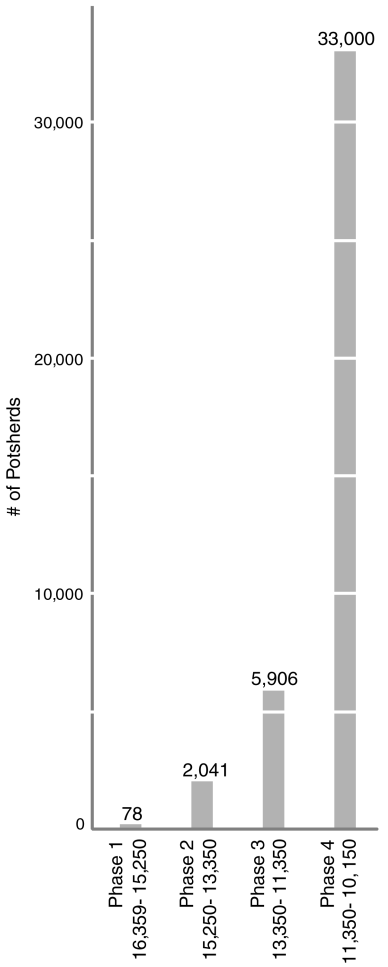

Fig. 4. Increasing abundance of early pottery in Japan, 16,350–10,150 cal. B.P. Data from Keally et al. (2003).

Correspondingly, radiocarbon dates for the first appearance of warmth-loving oak (*Quercus*) and beech (*Fagus*) in 24 terminal Pleistocene–early Holocene pollen sequences distributed from Kyushu to Hokkaido show that beginning in Kyushu about 24,000 B.P., these deciduous broadleaf species moved northward into Shikoku and southern Honshu between about 17,750 and 14,800 B.P., into Japan's Kansai and Kanto regions between about 14,800 and 11,875 B.P., into the Chubu-Tohoku regions between about 11,875 and 11,650 B.P., and into Hokkaido between about 10,150 and 8900 B.P. (Aikens and Akazawa 1996:Figs. 3, 4; Tsukada 1986:Figs. 1, 8, 9).

In the Russian Far East, early pottery-bearing sites of the same general time range seen in Japan include Gromatukha, Gasya, Gosyan, Khummy, Ustinovka 3, and Chernigovka 1, where a considerable number of early dates fall between about 16,200 and 10,000 B.P. (Kuzmin 2006:22–23; Zhushchikhovskaya 2005:12–21, 24).

The very earliest pottery vessels known from eastern Asia, which appear in the

more tropical latitudes of southern China, contribute to our view of this process (Wu and Zhao 2003). Organic remains in pottery from Miaoyan have been dated to about 18,375 B.P., and organic remains in pottery from the Yuchanyan site have been dated to about 17,650 B.P., while Xianrendong has yielded a range of dates between about 17,425 and 14,675 B.P. Although questions have been raised about stratigraphic mixing at Xianrendong, the ambiguities do not negate the importance of this site as an early datum. The Chinese data show that the use of pottery vessels to process and store a rich and highly varied biota was earliest established in the south, and the Japanese and Russian data show that this usage spread northward with global warming and the biotic enrichment of northern terrains at the end of the Pleistocene.

In this connection it is further notable that Zhushchikhovskaya's (2005:24–26) experimental study of the fabrication and firing techniques attested in the earliest Russian vessels, and her comparative study of early Japanese and Chinese pottery, lead her to conclude that the early finds from the Russian Far East, Japan, and China do not reflect a single origin and diffusion of pottery, but instead regional trajectories arising out of widely shared modes of production and thermotechnics, in short, developments "among people who were progressing together over a broad geographical front."

The technical points are fundamental. The earliest pottery vessels of Gasya, Khummy, Gromatukha, and Chernigovka I in the Russian Far East display a unique process of formation by packing clay within plaited basket-like molds. In China, some of the earliest pottery shows signs of formation in more rigid molds, and probably some kind of paddling. In Japan there are no traces of molds, and early pottery was formed by slab construction and coiling (Vandiver 1987). The tempering of clay in Russia was initially done with grass, but in later times the artisans chose naturally sandy clays. The trajectory of earliest tempering agents in Japan is the opposite of that in the Russian Far East, with solid tempers earlier, and grass temper becoming important only after about 8350 B.P. Decoration in the Russian pottery appears quite late in the regional sequence, while in China and Japan cord-marking, fingernail impressions, and relief ornamentation begin very early. Although much detailed comparative work remains to be done, current data strongly indicate a series of independent origins, with diffusionary connections between regions coming later (Zhushchikhovskaya 2005:51–58; Zhushchikhovskaya and Ponkratova 2000; see also Vandiver et al. 1989).

Finally, the fact that these ancient pottery sites are commonly termed "Early Neolithic" invites comment. As is well known, this designation in Northeast Asia indicates the presence of pottery, but not necessarily of agriculture, as in other parts of the world. Nevertheless, it is fully evident that pottery initially appeared in both southern China and northeastern Asia within a context of diversified broad-spectrum subsistence economies in which plant foods were extremely important, and thus established the dietary and technological foreground of formally agricultural economies that were to come later. The Asian data show very well that the original incentive to create pottery vessels was not agriculture per se, but rather the emergence of broadly based and quite stable hunting-fishing-gathering communities that needed durable and cheap containers, producible in quantity, to make the best use of natural resources that became increasingly available under

the warming climatic regime of late glacial times. Thus it is appropriate to call this pottery "early Neolithic," while that of the subsequent agricultural periods is "late Neolithic."

LATE PLEISTOCENE–EARLY HOLOCENE COASTAL, ESTUARINE, AND INTERIOR OCCUPATIONS

Known near-shore sites, as well as ecological considerations, support a presumption that people utilized the littoral zone all around the Sea of Japan from Late Pleistocene times onward. Ancient sites found preserved on or near modern shorelines are rare, however, most dating only after about 7000 B.P. when the rising global ocean of postglacial times stabilized near its current level. The Natsushima Shellmound on Tokyo Bay, already discussed, is one notable exception to this rule because it was kept above the rising waters by local tectonic uplift. With an early date of about 10,850 B.P., it affords a priceless snapshot of a rich early Holocene bay shore midden with faunal evidence for intensive strandline collecting of shellfish, both shallow and deep-water fishing, and the hunting of land animals in the adjacent hills, including deer and boar (Sugihara and Serizawa 1957). From such a beginning, throughout thousands of years of Jomon time the Tokyo Bay region supported large populations of hunter-fisher-collectors, who ranged out daily and seasonally from substantial pithouse villages to make their livelihoods from the region's diverse and abundant resources (Aikens 2004:11–13; Habu 2001).

In Korea, another exception more recently discovered is Kosanni, situated just off the tip of the peninsula on a coastal terrace of Cheju Island. Pre-Chulmun paleo-pottery found there has been placed at about 10,450 years ago by thermoluminescence dating, but that is probably a minimal date, as the pottery itself is closely similar to the wares of the early ceramic Osipovka culture on the lower Amur, which is dated to the Pleistocene-Holocene transition of about 13,000 to 10,000 B.P. at Gasya, Khummy, Goncharka 1, and a considerable number of other sites. Further suggesting a similar date, the Kosanni pottery was also found with stemmed, unstemmed, concave-base, and fish-shaped arrowheads, as well as bifacial points and blades, all very like those found in the Russian sites (Derevianko and Medvedev 2006:124–132; Gang 2002:9–33).

In Russian Primorye a cultural pattern very like Osipovka is documented by Ustinovka 3, a rich site about 30 km inland on the Zerkal'naya River. Ustinovka 3 has yielded both an optical luminescence date of about 12,200 years ago and a radiocarbon date on pottery organics of about 10,500 B.P. Environmental studies show that its occupation overlaps the Pleistocene-Holocene transition, with birch-larch forest initially present, and warmer broadleaf forest appearing over time. Small bogs and ponds would have existed near the Zerkal'naya river mouth, with meadow-steppe vegetation along the river terraces (Cassidy and Kononenko 2001; Kononenko 2001, 2002).

Densely distributed artifacts and an area of small holes dug into the occupation surface at Ustinovka 3 indicate dwelling and working areas. Much lithic debris and many bifaces, among other items, show that lithic manufacture was a major activity at the site, and several dozen sherds show the importance of pottery. Many foliate points and small triangular arrowheads indicate hunting as an impor-

tant activity, while the riverine setting itself suggests fishing as well as land hunting and plant food collecting. A flaked stone effigy of an apparent fish was also found. Use-wear analysis of a sample of tools and flakes suggested functional tool categories that included meat knives, hide scrapers, perforators, engravers, anvils, hammer stones, and grinding slabs for processing vegetal materials. The diverse artifactual evidence suggests that Ustinovka 3 was a seasonal base where hunting, fishing, collecting, and tool-making were all acted out in a natural setting that was growing increasingly productive as postglacial warming fostered rising sea levels.

The early Holocene interval that follows this transitional period, dating about 10,000–8000 B.P., is only weakly represented in the currently known archaeological record of Sakhalin, the Lower Amur, and Primorye. Nevertheless, the middle Holocene florescence that followed leaves little doubt that significant early evidence awaits future discovery.

MIDDLE HOLOCENE BAY-SHORE, COASTAL, AND INTERIOR OCCUPATIONS

Coastal occupation flourished all around the Sea of Japan during the middle Holocene. In the north, the seacoast of Sakhalin Island was occupied by the Yuzhno-Sakhalinsk culture, ^{14}C dated between about 7600 and 6600 B.P. The economy was quite sedentary, based on land and marine resources. Sea mammal hunting is attested by finds of whale-shaped stone figurines in the Starodubskoe-3 site, and by the vertebra of a seal in Kuznetsovo-3. In the Yuzhno-Sakhalinsk pottery-making tradition, clear elements of similarity with the early Holocene Jomon assemblages of Japan include pointed and round-bottomed vessels and forms of cord-marking. Sakhalin's following Imchin River Neolithic culture shows a close connection to the adjacent Lower Amur region, with a rich tradition of round pithouses about 3 to 11 m in diameter that were associated with pottery, flake tools from mainly discoidal or oval cores, bifacially retouched tools, and ground stone axes and adzes. The Imchin tradition extends through middle Neolithic and into late Neolithic times, between about 6800 to 3800 B.P. Considered to be mainly of interior orientation, the Imchin people surely engaged in river fishing, but perhaps not yet in hunting marine mammals (Kuzmin 2006:29–30; Shubina 1990; Zhushchikhovskaya and Shubina 2006:94–98).

In the Lower Amur basin, village settlements of the Malyshevo culture are currently dated between about 7000 and 4700 B.P., though the culture as a whole may go back somewhat earlier. In this predominantly flat region, sites on riverbanks or islands high enough to be spared from the annual flooding of the great Amur River were occupied through many prehistoric periods, continuing into modern times. Such sites give evidence of numerous semi-subterranean houses, many identified with the Malyshevo culture.

The known Malyshevo occupation levels attest a well-developed Neolithic culture of riverine fishermen and hunter-collectors who used leaf-shaped points, blades from polyhedral cores, choppers, ground stone axes, and sinker stones, along with pottery decorated by stamping, wicker imprints, and incised lines. The sites of Malyshevo and Gasya both give good evidence of typical rounded semi-subterranean houses which had one, two, or three fireplaces, sleeping ledges around the sides, a number of roof-support posts, and storage pits about 1.5–2.5 m in diameter. No currently known examples give evidence of a constructed

entryway, suggesting the occupants entered via a ladder through a smoke hole in the roof, a pattern extant throughout the region into ethnographic times. Such houses spanned a considerable size range, falling into small (30–60 sq m), medium (70–110 sq m), and large (150–180 sq m) types.

Artistic expression is well attested in the Malyshevo culture, manifesting itself in forms and styles fundamentally similar to those seen in the contemporaneous Early Jomon culture of central Japan, and reflecting a similar social milieu. Anthropomorphic female figures sculpted in clay depict eyes, noses, mouths, breasts, and vulvas. Arms are sometimes indicated, but not legs, while heads are often broken away from the rest of the figure. One sculpture suggests both a vulva and a phallus, and other phallic forms, sometimes double-ended, are well represented. Apparently male anthropomorphic heads are also found. Sculpted figures of bears, a seal, and birds in flight are known, while one double-ended figure has a seal's head on one end and a phallus on the other. A sculpted clay canoe has also been found, as have small ceramic balls and pieces of ceramic rings. Many of the clay objects have perforated holes for suspension, while stone ornaments similarly perforated include cylindrical and barrel-shaped beads, and discs of nephrite. Active decorative and ceremonial concerns, including an emphasis on fertility, are clearly implied by these finds (Derevianko and Medvedev 2006:132–139; Medvedev 2003).

A culture that apparently coexisted for some time alongside the Malyshevo culture is the Kondon, known from the same general region. Not many sites have been found, and only one has been studied in detail. At this site, near the post office of the rural town of Kondon, about 15 house depressions were found in a dense cluster, of which 9 have been excavated and identified as being of the Kondon culture. The house floors were circular or oval, about a meter deep, and of small to medium size, with walls outlined by two concentric alignments of postholes. Houses typically had one central fireplace, with several lesser hearths nearer the walls. The Kondon culture bears considerable similarity to the Malyshevo culture, though it manifests a distinctive ceramic complex defined by its "Amur wicker" decoration (Derevianko and Medvedev 2006:139–142; Medvedev 2003; Okladnikov and Derevianko 1973; Shewkomud 2003).

Down the Japan Sea coast in Primorye is seen a cultural pattern known as Rudnaya Pristan, which is quite comparable to Kondon and Malyshevo farther north and perhaps begins somewhat earlier; the chronological relationships are not entirely clear. This manifestation is named after the rich and informative Rudnaya Pristan site, placed by a series of ^{14}C dates between about 8600 and 8265 B.P. (Zhushchikhovskaya 2006:103). Traces of ten substantial pithouses were discovered there, the structures being square in outline with central fireplaces and roof support posts in the corners. The closely related Chertovy Vorota cave site some 30 km distant also gives evidence of pithouses and a diverse array of specimens, and carries dates between about 7650 and 7225 B.P. Together, the two sites document a substantial Rudnaya cultural inventory that gives a good sense of the cultural pattern leading into the Middle Holocene of Primorye.

The lithic industry included blade-like flakes, microblades, and generalized flakes, upon which were made triangular and lanceolate projectile points, knives, scrapers, saws, drills, gravers, adzes, and perforators, among other items (Fig. 5). Use-wear analysis showed the saws, drills, and other types to comprise a toolkit

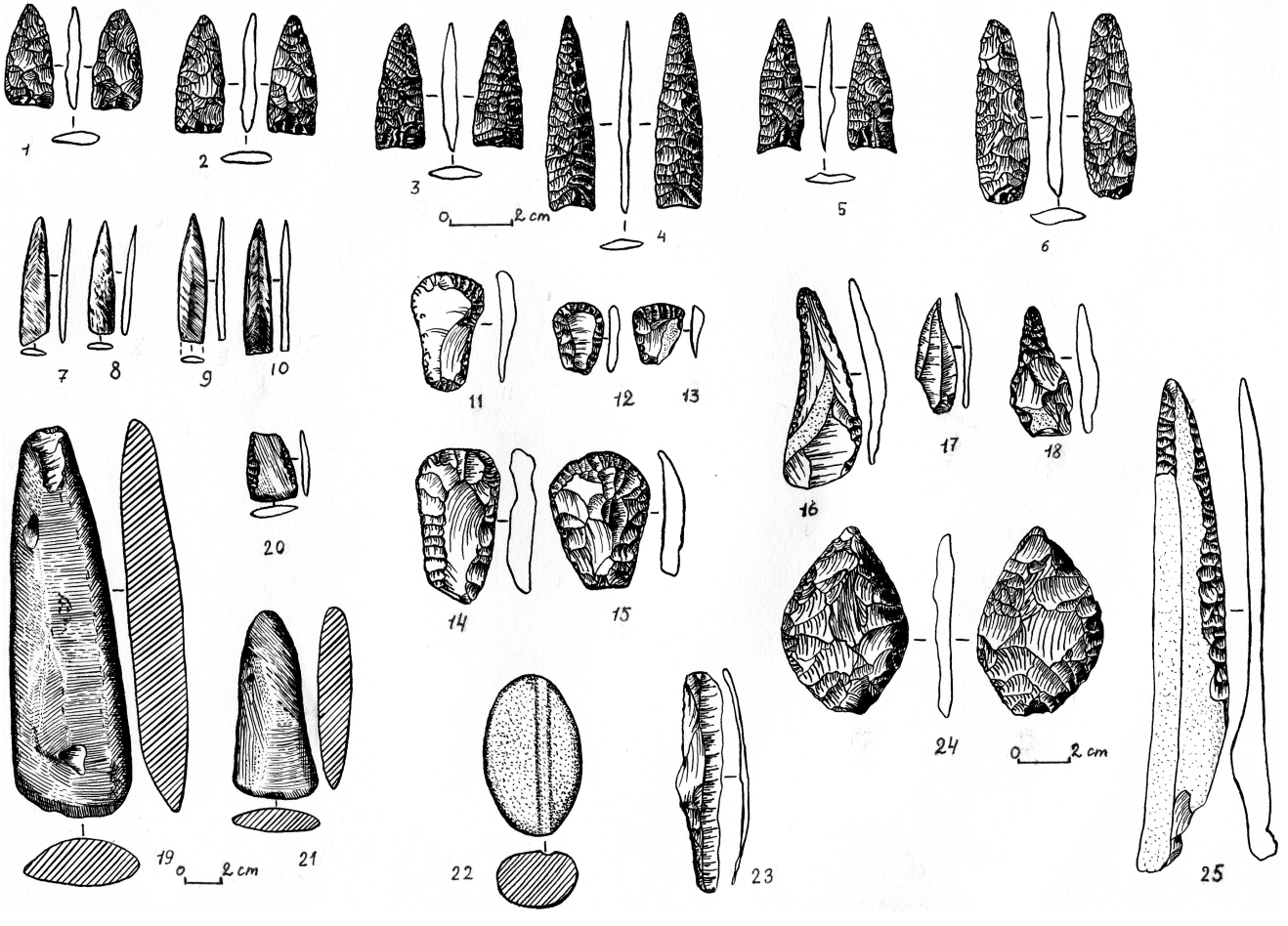

Fig. 5. Stone artifacts of the Rudnaya Neolithic culture, Russian Primorye. 1–6, flaked projectile points; 7–10 polished stone points; 11–15, scrapers; 16, push-plane; 17, 18, drills; 19–21, polished adzes; 22, shaft straightener; 23–25, knives. (Zhushchikhovskaya 2006 : Fig. 6.3).

for processing wood, bone, and antler, while bone and antler tools included awls, needles, harpoon points, and barbed fish spearheads (Fig. 6). Pottery, represented by whole vessels as well as fragments, was made at both sites with local raw materials, constructed by coiling, and fired in the open at about 600–650 °C. The vessels were sub-conical with flattened bottoms, some having slightly convex walls, and decorated by stamping and appliqué (Fig. 7). Ornamental beads, pendants, and bracelets of shell, bone, and stone were numerous in the Chertovy Vorota Cave assemblage, making it the richest currently known for Neolithic Primorye. Fragments of charred nets, textiles, cords, and mats were also recovered.

The Rudnaya paleoeconomy relied on a broad spectrum of animal and plant foods, as seen from the remains at Chertovy Vorota. The hunting of bear, boar, red deer, wolf, badger, and birds was clearly important, with fishing also well attested by bones, harpoon heads, and net fragments. Marine shells were found but their collection was not a dominant emphasis. Plant food gathering was attested by nut and acorn remains. The Rudnaya culture extends into the early part of the Climatic Optimum, a time of prosperity throughout the Sea of Japan/East Sea region.

Farther south near Vladivostok, the Boisman culture flourished around Peter the Great Bay between about 7200 and 5750 B.P. It occupied a setting where rising Middle Holocene seas flooded river mouths to form bays and estuaries that extended well into the wooded hills behind. The silt loads of such rivers laid down a base for progressively seaward meadows, marshlands, and bays, where a rich human economy developed on the basis of both interior and marine resources. Large and small midden sites in waterside settings give evidence of shellfish collecting, fishing, and terrestrial hunting, while settlements with semi-subterranean houses and cemetery areas were also part of the local picture (Popov et al., 1997; Vostretsov 1998).

The Boisman I–II sites, which lie about 400 m apart in the Riazanovka River estuary that flows into Boisman Bay, provided the first strong definition of this culture. Both are shallow middens composed primarily of Pacific Oyster shells, and both yielded the remains of pithouses with central fireplaces. Two small houses excavated in Boisman I were rectangular with rounded corners, while one excavated from Boisman II was more rounded. The Boisman II midden, slightly over a meter deep, yielded an abundance of faunal remains, pottery, and artifacts of stone and bone, all placed in time by a series of 24 ^{14}C dates that range between about 7200 and 5750 B.P. It also contained a cemetery that is unique in the Neolithic of the Russian Far East, with both individual and collective burials in rounded pits. Children, young adults, and the aged are all represented, along with utensils, hunting implements, and ornaments as grave goods. Intentional skull deformation is evident in some cases. Nine dates on human bone place the series of interments between about 6600 and 6150 B.P. (Kuzmin 2006:23–24; Zhushchikhovskaya 2006:107–112).

A rich material culture is attested in the Boisman sites. Flakes and blade-like flakes were used in the making of foliate and triangular dart points, spear points, and knives, as well as scrapers, drills, saws, and other items. Arrow points, adzes, and chisels were also made of flaked and ground schist, while pebbles were used as raw material for chipped trapezoidal or oval hoes, net sinkers, and abraders. Fish leisters, toggling and non-toggling harpoon heads, fish shiners, fishhooks,

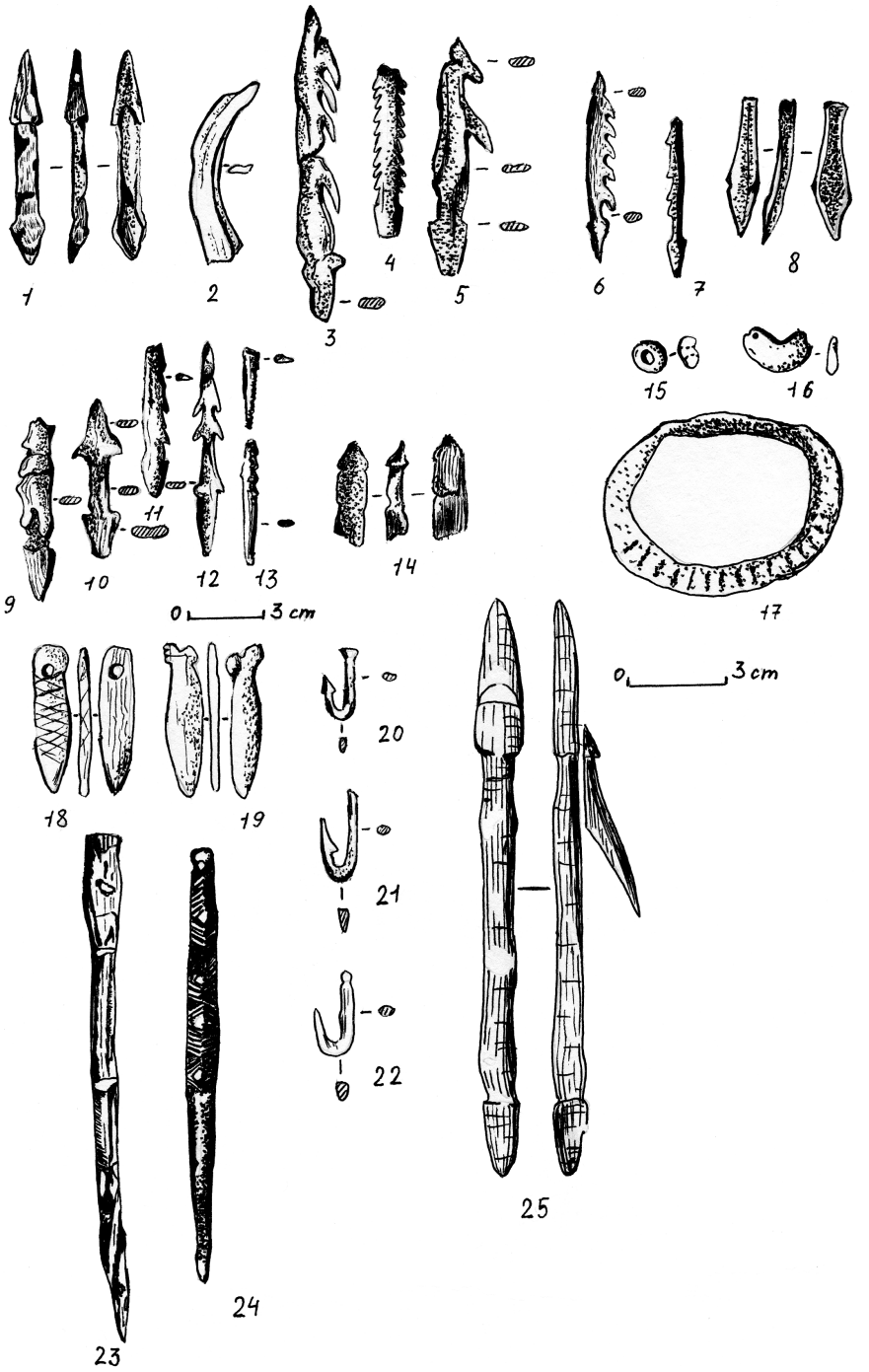

Fig. 6. Bone artifacts of the Rudnaya Neolithic culture, Russian Primorye. 1–4, needles; 5–7, awls; 8–10, arrowhead foreshafts; 11, 14, harpoons; 12, dagger; 13, spearhead; 15, 16, pendants; 17–20, beads; 21, 22, pendant "blanks"; 23, tubular bead. (Zhushchikhovskaya 2006 : Fig. 6.4).

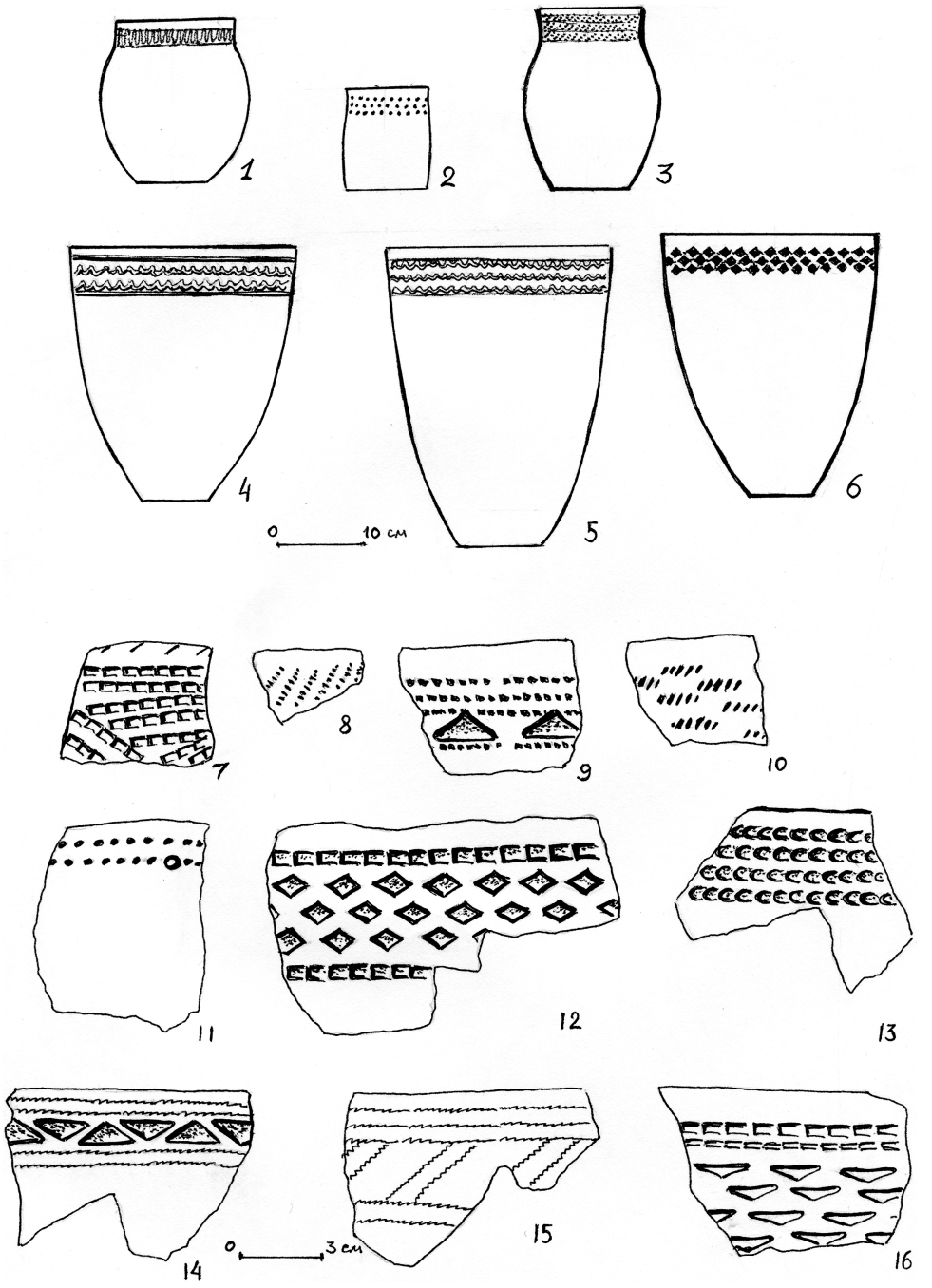

Fig. 7. Pottery of the Rudnaya Neolithic culture, Russian Primorye. 1–6, whole vessel forms; 7–16, decorated fragments. (Zhushchikhovskaya 2006 : Fig. 6.5).

borers, awls, scrapers, needles, needle cases, and leather polishers were all made of bone. The pottery inventory included 13 complete vessels and about 5000 potsherds, the vessels made by both coiling and molding using local clays with firing at about 600–650 °C. Vessels were sub-cylindrical with open mouths and flat bottoms, though a few had pointed bottoms like those seen in Initial and Early Jomon Japan, and decoration was primarily by various forms of carefully executed comb-stamping.

The Boisman peoples' close economic connection to the sea is indicated not only by the extensive shell middens but also by the bones of at least 18 kinds of fish, including large white shark and red skate, along with Pacific herring, redeye, Mugil, and other species. Terrestrial animals include boar, red deer, roe deer, raccoon, and dog, while marine mammals including Steller's sea lion, seals, and dolphins were also taken. Plant foods are not well attested in the current record, though carbonized nutshells are known. The economic species and technology used to take and process them are strikingly similar to those seen in the coastal sites of Chulmun Korea and Jomon Japan.

The Zaisanovka tradition, which overlapped in time with Boisman and continued into late Holocene times, is dated by some 27 ^{14}C determinations between about 6550 and 3300 B.P. (Kuzmin 2006:26–28). It extended well into interior Primorye and is known from a number of sites, including Zaisanovka I, the upper Neolithic level of the Rudnaya Pristan site farther north, and Oleny 1, among others (Zhushchikhovskaya 2006:112–118). Zaisanovka pithouses were generally rectangular, sometimes with rounded corners, and had central fireplaces. Floor area varied considerably, from about 10 to 45 m^2. Stone tools included leaf-shaped and triangular arrow and dart points, bifacial knives, end-scrapers, borers, polished axes, and flaked and polished adzes. Pottery consisted dominantly of coarse bucket-shaped and bowl-shaped vessels with varied forms of incised and stamped decoration, but in later times also included a fine ware with relatively thin walls that was carefully smoothed and often polished. Pottery spindle whorls 4–5 cm in diameter are distinctive characteristics of Zaisanovka, as are small figurines and anthropomorphic "masks" of fired clay and a variety of ornaments including pendants, beads, and rings of stone, bone, and pottery.

Early in the Zaisanovka period, fishing and gathering of marine resources were pursued along the seacoast, but cooling after the mid-Holocene optimum evidently reduced coastal zone productivity. Subsequently, the main settlement and subsistence patterns became more oriented to continental landscapes. Stone hoes, graters, and grinding stones begin to suggest the cultivation and processing of plant foods. In considering this environmental and cultural transformation of Zaisanovka it is important to take note of the Krounovka I site on the interior continental side of southern Primorye, which contains two Zaisanovka occupation layers. In the earliest one, dated about 5200–4700 B.P., are preserved the grains of two millet species, which give the first direct evidence of initial agriculture in the Primorye region. It is generally supposed that agricultural technology was spread from Neolithic cultures of neighboring Northeast China (Kuzmin 2005; Sergusheva 2008; Vostretsov 2001, 2004, 2006). The subsequent Zaisanovka layer dates considerably later and is treated in a following section.

Eastward across the Sea of Japan, a series of Jomon sites demonstrate striking ecological and technological parallels to the cultural developments just reviewed

from the Russian side. At Wakasa Bay, northwest of Kyoto, the waterlogged and well-preserved Early Jomon Torihama site has yielded a rich assemblage that documents river-mouth fishing, shellfish gathering along the bay shore, hunting of boar and deer in the adjacent flats and hills, and collection of walnuts and other plants in quantity (Fukui-ken Kyoiku Iinkai 1984; Morikawa 1976). Abundant pottery remains attest the cooking and storage of such food items. Torihama—along with other waterlogged sites known from various parts of Japan—further shows that the Jomon cultural inventory was rich in such normally perishable items as wooden dugout canoes, carved paddles, adze handles, bows and arrows, lacquered bowls and combs, household items carved with sophisticated mortise and tenon joints, and textiles including basketry, matting, and netting. Other sites show that soon after 7000 B.P. Early Jomon coastal and bay-shore occupation is established all around Japan, and this continues into Middle and later Jomon times (Aikens and Higuchi 1982; Habu 2001; Imamura 1996).

Of comparable age to Torihama is Mawaki, an Early Jomon site at Toyama Bay not far north of Torihama. Clearly a prosperous bay-shore adaptation was established in this typical Japan/East Sea setting, and the area gives abundant faunal evidence for the drive hunting of bottlenose dolphins, the scavenging if not hunting of larger whales, and other kinds of fishing and hunting (Hiraguchi 1992:Figs. 2, 3, Table 1). Toyama Bay has remained a focus of fishing and sea mammal hunting right down to the Edo period when such activity is graphically described in historical sources, and into modern times.

Farther north up the coast, shell middens of Early Jomon age on the northern shores of Hokkaido at Kushiro and Abashiri also give evidence of fishing, the hunting of sea lions, fur seals, and dolphins, the scavenging or hunting of whales, the taking of bear and deer, and gathering of nuts and other plant foods (Dumond and Bland 1995; Nishimoto 1988; H. Okada 1998; Yamaura 1998). Elsewhere, the Kita-Kogane shell midden and nearby Usu site record Early and Epi-Jomon occupations at about 6850 and 2000 B.P., respectively, with faunal remains showing that throughout this time range people took mussels, oysters, bonito, halibut, cod, fur seal, deer, and bear, while grinding stones attest the processing of vegetal foods. Stable nitrogen and carbon isotope ratios in human bones correspondingly show dietary intakes representing terrestrial plants, terrestrial herbivores, shellfish, fish, and large marine mammals (Minagawa and Akazawa 1992:61–63, Fig. 3).

The interior mountains of central and northern Honshu contain many Early and Middle Jomon sites. There, the high social importance of communal ceremony and ritualized feasting is dramatically shown by elaborate hollow and solid fired clay anthropomorphic female and zoomorphic figurines, stone phalli, shell bracelets, stone, bone, and shell beads and pendants perforated for suspension as necklaces and bracelets, deep cylindrical serving vessels with fantastically elaborated rims, carved and footed bowls, intricately constructed or perforated incense burners, and even unmistakable teapots with spouts and handles. Distinctive large, deep open-mouthed pots are thought to have been used for the brewing of an early "sake" from native grains, while broad, short barrel-shaped vessels with straight, simple rims were apparently the bodies on which skin drumheads were stretched. A great deal of collective energy and organization obviously went into such social events, which would have affirmed the community's solidarity and

spiritual beliefs and were surely a lot of fun as well (Kidder and Esaka 1968; Tsuboi and Kobayashi 1977).

Representative Middle Jomon sites include Togariishi, Yosukeone, and Idojiri, among many others known from Nagano and adjacent prefectures. Here the number and density of Middle Jomon archaeological sites initiated much discussion some years ago of a possible "Jomon agriculture" based on the tending of native plants such as acorns and chestnuts, which was seen as a likely source of the energy supporting the high level of sociocultural elaboration so clearly manifested in the ceramic complex (Aikens and Higuchi 1982:137–156; Fujimori 1970; Nishida 1983). While it is clear that such foods were highly important in the Jomon economy however, it has not been convincingly demonstrated that actual cultivation or domestication was involved in their use. With reference to other species, Crawford (1992:8) has pointed out that Japan, Korea, and Northern China in general are biotic "centers of diversity and potential sources of many cultigens," and ongoing research has produced many finds of such domestic plants as bottle gourd, perilla, Chinese cabbage, foxtail millet, and common millet in Initial through Late Jomon sites. A buckwheat grain was found at the Early Jomon Hamanasuno site in Hokkaido, and buckwheat pollen of Early Jomon age from Ubuka Bog in southwestern Honshu is dated to about 7500–5100 B.P. Such evidence, however, never occurs in sufficient quantity to suggest that cultivation made a decisive caloric contribution to Jomon subsistence, and it is thought that these domesticates were at most specialties and condiments within a food economy that was fundamentally based on hunting and collecting (Crawford 1992:18–20; Matsui and Kanehara 2006:267–268; Rowley-Conwy 2002:62; Tsukada 1986:33).

In addition to many substantial villages of single-family pithouses such as those just mentioned, which give clear evidence of a general prosperity and of collective social affairs, the mountains and coasts of central and northern Honshu also contain both Early and Middle Jomon sites that suggest higher levels of social complexity and management. Quite a few sites are known where clusters of family-sized pithouse dwellings were centered on one, two, and sometimes more large rectangular structures as much as 8–10 m wide and 15–30 m long. These were most likely the households of prosperous lineages or extended families that played important social roles within the community as a whole. Dozens and even hundreds of storage pits, many containing numerous deep pottery vessels, suggest that substantial harvests were collectively managed at these sites, while the sheer numbers of cultural features and signs of structural repair and rebuilding show that such places were occupied over generations.

Sannai Maruyama in Aomori Prefecture is the best known of these large-scale communities (Habu 2002; Okada 2003), but a number of similar sites are reported from central to northern Honshu, for example Fudodo and Mizukamidani in Toyama prefecture (Toyama-ken Kyoiku Iinkai 1974*a*, 1974*b*), Hatookazaki in Iwate Prefecture (Iwate-ken Kyoiku Iinkai 1982), and Sugisawadai in Akita prefecture (Akita-ken Kyoiku Iinkai 1981). Together, these sites indicate a regional social landscape that throughout the Early and Middle Jomon of northern Honshu embodied a certain number of large focal settlements or "towns" in addition to many smaller village communities (Watanabe 1975).

A wide-ranging review of organizational possibilities for such communities by Pearson (2007) makes one cautious, however, about trying to define too closely the forms of social status and control that are manifested in them—as does the closely studied life history of Sannai Maruyama itself, where the kind and degree of centralized organization obviously fluctuated over time. During Late Jomon times in the same region, carefully laid out ritual cemeteries, fine pottery, lacquerware, and other items indicate growing disparities in wealth and social standing, yet it is not at all clear that wealth and power were institutionalized within a social class system (Ikawa-Smith 1992:85). Pearson (2007:382) concludes that currently influential views imply for Jomon society a "fluid tribal type of organization" that certainly included "special leaders and important elders," but was highly situational and influenced by a variety of locally differing and temporally fluctuating socioeconomic factors.

Turning to the Korean peninsula, pottery and other artifacts show close links with both Japan and the Russian Far East over a long period. The pre-Chulmun paleo-pottery of Kosanni, technically much like the Early Neolithic pottery of the Lower Amur River Basin, was followed at Osan-ri, Tongsamdong, and other east coast sites by banded Yunggimun pottery, which has affinities to the Neolithic pottery of Novopetrovka in the Russian Far East (D. J. Lee 2002:91–101), and has also been compared to the linear-relief ware of earliest Jomon in Kyushu (Nelson 1993:72). Classic Korean Chulmun pottery, with its various geometric designs made by a comb-like tool, is also present at these sites and soon comes to dominate them. The earliest reliable ^{14}C dates for Chulmun ware are about 7900 B.P. at Osan-ri and about 6725 B.P. at Tongsamdong, while other dates carry the occupations of these sites down to about 5000–4000 B.P., respectively (Nelson 1993:64–65).

Chulmun settlements all along the coast of the East Sea give rich faunal evidence of intertidal collecting, shallow and deep-water fishing, and the taking of sea lions and small whales, with terrestrial hunting also attested (Sample 1974; Yi 1992). At the same time small Chulmun communities of up to 20 pithouses extended deeply into the interior along the terraces of major rivers, where they were flanked by mountainous woodlands in settings very comparable to those of Japan and the Russian Far East (Ro 1997). Many interior sites are known, while many more sites await detailed reporting as the pace of field research outruns that of publication. Fishing, hunting, and collecting of plant foods all were important in these interior settings; though seeds and nuts are only rarely preserved, grinding stones for their processing are common.

Such highly elaborated pottery and figurines as seen in Japanese Jomon settlements have not been identified from Chulmun sites, but bracelets of shell, nephrite, and marble, beads of shell, animal bone, jade, and pottery, solid clay figures of human females, birds, dogs, bears, and snakes, and a possible shell mask representation nevertheless represent wealth and status markers within Chulmun society and suggest the same kinds of shamanistic ceremonialism seen in the Russian Far East and Japan (Nelson 1993:106). Carbonized millet from Tongsamdong, and millet, barley, and peas from Daecheon-ni, Jitap-ni, Namgyeong, and other Chulmun sites in Korea show that cultivation was appearing in Korea just as it was in adjacent northeastern China and the Russian Far East by about

5000–4000 B.P. (Crawford and Lee 2003:87–91; Nelson 1993:60–106; Shin 2007:22–23).

Deeper in the continental interior, sites broadly similar to and contemporary with those of Korea and the Russian Far East are spread across Northeast China's Manchurian provinces of Liaoning, Jilin, and Heilongjiang. In the far northeast the site of Xin-kai-liu, located near the meeting points of the Sungari, Amur, and Ussuri rivers and dated to about 6900 B.P., has revealed incised and net-impressed pottery, sinker stones, and various kinds of hook, harpoon, and spear point. It also yielded ten storage pits filled with fish bones, including salmon, catfish, and carp. A cemetery of more than 30 burials was found in the site's later levels. No houses were reported from the limited excavations at Xin-kai-liu, but other sites with comparable assemblages in the same general region were village settlements containing round or square pithouses (Ye 1992:152).

Other Manchurian sites such as Zuo-jia-shan and Ang-ang-shi extend later in time and give evidence of pottery with various forms of impressed and incised decoration, arrowheads, grinding stones, adzes, bone harpoon heads, fish spearheads, fish and mammal bones, and other evidence of broad-spectrum hunting-fishing-gathering. The Xinle site in southern Manchuria produced charred grains from a posthole apparently of broomcorn millet with a date of about 7500–6500 B.P. (Crawford 1992:16). Near Dalian on the Bohai seacoast, the sites of Xiaozhu-shan and Guo-jia-cun, dated between about 6000 and 4000 years ago, give evidence of sea mammal hunting, shellfishing, and the hunting and gathering of terrestrial biota. Cultivation is also indicated there at least 4000 years ago by the finding of a basket containing millet seed remains. These and other examples summarized by Ye (1992) and in Nelson's (1995) collaborative volume strongly suggest that the Japan/East Sea Oikumene included Manchuria, but the present authors' language limitations prevent our addressing the question adequately and we hope others may take it up in the future.

In sum, this review clearly shows that all the Early Neolithic cultures around the Japan/East Sea have a great deal in common. Shared geographical and ecological factors gave them all similar socioeconomic bases, while persistent cultural similarities and shared patterns of long-term change—in pottery, lithic industries, architecture, and both technological and ceremonial/artistic objects of stone, bone, and shell—show that their peoples maintained a significant degree of communication over long distances. At the same time, distinct pottery styles clearly show that separate regional social identities were long sustained. A point of contrast between mainland and archipelago is seen in the fact that the Jomon culture of Japan displays a more elaborated ceramic complex, and many more archaeological sites are known there. These facts suggest possible demographic and organizational differences between the cognate Japanese, Korean, and Russian traditions, but the extent to which this current impression may be demonstrated by future research remains to be seen. The contrast may prove to be more apparent than real, stemming from the much longer history of archaeological work in Japan that gives it a fuller and no doubt more representative sample of archaeological evidence.

Important note: from this point on we employ a new dating convention. Up to now we have cited years "before present" (B.P.), but as we enter the era when

text-based calendars dominate the chronology of archaeological discussion, we cite dates published as years "B.C./A.D." and where appropriate we convert calibrated radiocarbon dates to that standard.

AGRICULTURE, METALS, AND ADVANCED POTTERY TECHNOLOGY

The appearance of agriculture and two great technologies—metal and advanced ceramics—had revolutionary implications for intensified late Holocene social interaction and complexity within the Japan/East Sea Oikumene. Key elements that bespeak seminal connections with more distant Central Asia and the Chinese heartland, they helped bring into being the cultural configuration that has dominated all subsequent history in the Japan/East Sea region. As noted above, plant-processing equipment began to appear in Russian Primorye between about 5200 and 4700 B.P. and millets were first detected within a basically Early Neolithic hunter-gatherer Zaisanovka layer at the Krounovka I site, although agriculture only later became the more important branch of the economy.

The Krounovka culture of interior Primorye developed a complex economy in a major way during the period about 400 B.C. to A.D. 200 by introducing a relatively developed agriculture with millet and wheat to the region's pre-existing terrestrial-marine base, through its firm connection with the Tuanje culture of adjacent Northeast China (Sergusheva 2008; Vostretsov 2004:51–61). Meanwhile in coastal Primorye, riverine and bay-shore fishing remained important for a long time, although sometime between about 900 and 400 B.C. Yankovska people around Peter the Great Bay near Vladivostok added the raising of millet and pigs to the much older taking of salmon, shoal-water fishes, and great quantities of oyster (Brodianski and Rakov 1992; Kuzmin 2005; Vostretsov 1998; Zhushchikhovskaya 2005; Vostretsov 2001). In the northern interior also, a new pattern of cultivation and animal husbandry was established between about 1000 and 500 B.C. by the Uril'skaya culture of the Middle and Lower Amur basin. Iron artifacts and skillfully made pottery appeared during the same period (Derevianko 1973; Grebenshchikov and Derevianko 2001).

In the literature of Russian archaeology the term "Paleometal" designates the period when bronze and iron first spread in Liaoning, Korea, the Russian Far East, and Japan. The period's main features are a previous absence of local metallurgy, the imported origin of the first metal artifacts, the prompt adoption of simple basic principles of metalworking, and the close following of bronze by iron. The first evidence of pre-Paleometal innovations is connected with late Neolithic Zaisanovka culture assemblages of western and southwestern Primorye during the second half of the 2nd millennium B.C., which call inital attention to the social and technological changes that came later with the Paleometal period there and elsewhere in the Japan/East Sea Oikumene.

Adding to a persistent Early Neolithic tradition of "coarse" sub-conical deep pots made with coarse paste and unpolished surfaces, there appeared in Zaisanovka a more developed class of "fine" pottery with finer paste, thinner walls, and more carefully worked surfaces, typically in the form of small bowls and shouldered pots. These were often decorated with sharp incised triangles and meanders or geometric spaces filled with small hatching or fine-toothed stamping. Experimental research shows the more elegant vessels to be fired at tempera-

tures about 100 to 150 degrees higher than the cruder ones (Zhushchikhovskaya 2005:120–121). The Zaisanovka culture did not possess metals at this early time, but its distinctive "fine" pottery unmistakably demonstrates cultural intercourse with southwestern Siberia and Central Asia, and a growing dissemination eastward of the higher temperature firing technology developed there for metalworking.

Over a long subsequent period in Primorye, Korea, and Japan the progressive application of metallurgical technology to ceramics is expressed in higher pottery firing temperatures, as seen initially in some of the fine pottery of Zaisanovka. In the case of Late and final Neolithic pottery in Primorye, Japan, and Korea this is an interesting phase when no metals are yet present, but pottery-firing temperature is increasing along with the use of a polishing or smudging technology and some morphological features that suggest influence from metalworking cultures (Fig. 8). Well-fired polished red and black pots and bowls appear in Paleometal times, and are followed by truly high-fired drinking cups, teapots, wine pitchers, and serving dishes in the Iron Age—for example, the Dojil and Sueki stonewares of Korea and Japan, which were made of elegantly thin, high-fired pottery that seems to have been smudged in some cases and re-oxidized in others, and given a metal-like sheen. Similarly high-fired gray ware of Korean technology appeared in Primorye at about 600–700 A.D., and is currently under study there. In all cases this elaborated dining ware accompanies and reflects the growth and consolidation of a self-conscious aristocratic social stratum that delighted in expressing its wealth and power in public functions requiring—among other things—fine pottery (Barnes 1992:206; Pha 2006:25–52; Zhushchikhovskaya 2005:120–122).

An early outside source of the Paleometal technology seen in the Japan/East Sea Oikumene is identified far to the west. The Andron culture of the steppe zone between the Aral Sea and Lake Baikal, dated about 1800–1300 B.C., was the first in its region to develop a tradition of bronze metallurgy, an economy based on mixed agriculture and herding, and a military complex based on metal weapons (Kosarev 1981; Maksimenkov 1978). It was a precursor of the highly mobile and militaristic steppe culture tradition that flourished to the west and north of China's settled lands over succeeding millennia, with major effect on both Imperial China and the cultures of the Japan Sea Oikumene (Barfield 1989; Lattimore 1940). The Sinii Gai and Lidovka cultural assemblages of inland and eastern Primorye, dated about 1750–500 B.C., contain ground stone daggers apparently modeled on bronzes of the Karasuk culture that followed Andron beginnings in Central Asia and also yield Primorye's earliest traces of imported bronze. Ground stone replicas of bronze daggers and spearheads appeared too in coastal Primorye's Yankovskaya culture of about 900 to 400 B.C., which overlaps significantly in age with Lidovka (Fig. 9). In connection with these observations it is also of interest that early bronzes found in Primorye contain lead from ores mined in southern Siberia (Kon'kova 1996; Zhushchikhovskaya 2005:78).

The earliest dates currently known for iron items in Primorye, which include celt axes, knives, and arrowheads, also come from the Yankovskaya culture. These items occur in small numbers and probably were traded for the most part, although recent discoveries give probable evidence of local iron casting by about 500 B.C. (Kluyev 2008:101). Yankovskaya had at this time a tradition of growing social complexity based on a mixed gathering and food-producing economy. It

Fig. 8. [PHOTOGRAPH] Black smudged and polished pottery of the Russian Far East and Japan. Top, Krounovka culture, Russian Primorye Paleometal period, ~400 B.C.–200 A.D. Bottom, Honshu Japan Final Jomon, ~300 B.C.–300 A.D.

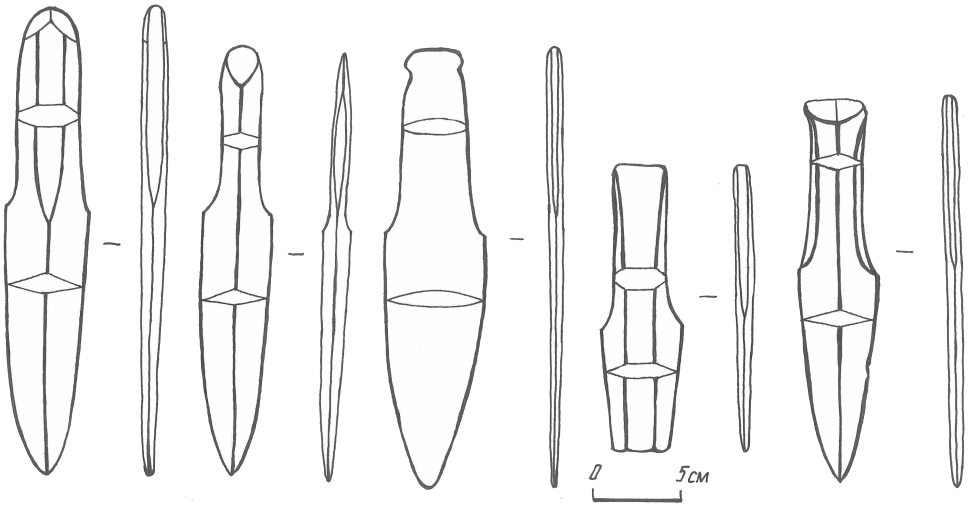

Fig. 9. Ground stone replicas of bronze daggers from sites of the Yankovska culture, Southern Russian Primorye.

has produced evidence of social elites and communal festive activity, but as yet no traces of fortifications or large storage facilities. The Krounovska culture, bordering and partly contemporary with Yankovska at dates of about 400 B.C. to A.D. 200, also gives evidence of a food-producing economy and growing militaristic social elites.

In adjacent Korea, substantial pithouse communities of a new Mumun ("plain coarse pottery") culture, which spread widely throughout the peninsula between about 1500 and 400 B.C., are of similar character (Rhee et al. 2007:407–415). Millet, barley, and wheat were grown as dryfield crops, and rice was cultivated in paddy fields. In the Korean case bronze tools and weaponry, and soon the technology for making them, were acquired directly from the neighboring Liaoning Peninsula, but as in the Russian cases the Liaoning bronze tradition is generally linked to a Northern Bronze complex hailing ultimately from the Eurasian steppes (Barnes 1993:153).

Throughout Korea the Mumun tradition is seen in the Songguk-ni village pattern, characterized by large socially and industrially differentiated settlements that were heavily engaged in mixed-crop and paddy field rice agriculture. Many villages displayed moated and palisaded perimeters, and some had internally fortified elite precincts containing their own cemeteries and storage complexes. Such traits suggest both significant inter-community competition and the rise of marked intra-community social stratification.

The bronze tools that marked and supported this Songguk-ni pattern unmistakably had their immediate local source in the western Liaoning region, as attested in cultural remains of the Xiajiadian site there. Over 100 Liaoning-type bronze implements have been uncovered from various Korean sites, of which 58 are Bipa-shaped bronze daggers and the rest, spears (13), arrowheads (13), and fan-shaped adzes (10) (K.-M. Lee 1998:63). Bipa-shaped daggers from Korea mostly have a notched tang, unlike those found in the Liaoning region, and this

shows—along with bronze adze molds found at Songguk-ni and other early Mumun sites in Korea—that Korean smiths soon took up local production. Bronzes are found in elite graves along with arrowheads, tubular beads, and red burnished pots, and even polished stone daggers made in imitation of metal prototypes. Around 250 B.C. the Bipa-shaped bronze daggers with their voluptuously curved blades gave way to Koreanized slender bronze daggers, which had straight blade edges and a narrower lower body with concave indentations along both sides. As Korean bronze working developed, new weaponry included spears, halberds, and buckles, while ceremonial items included multi-knobbed mirrors with fine geometric designs, and bells (Fig. 10).

Liaoning bronzes in Korea were the weaponry of rising warrior elites and the tools of their artisans, differing fundamentally from the predominantly ceremonial

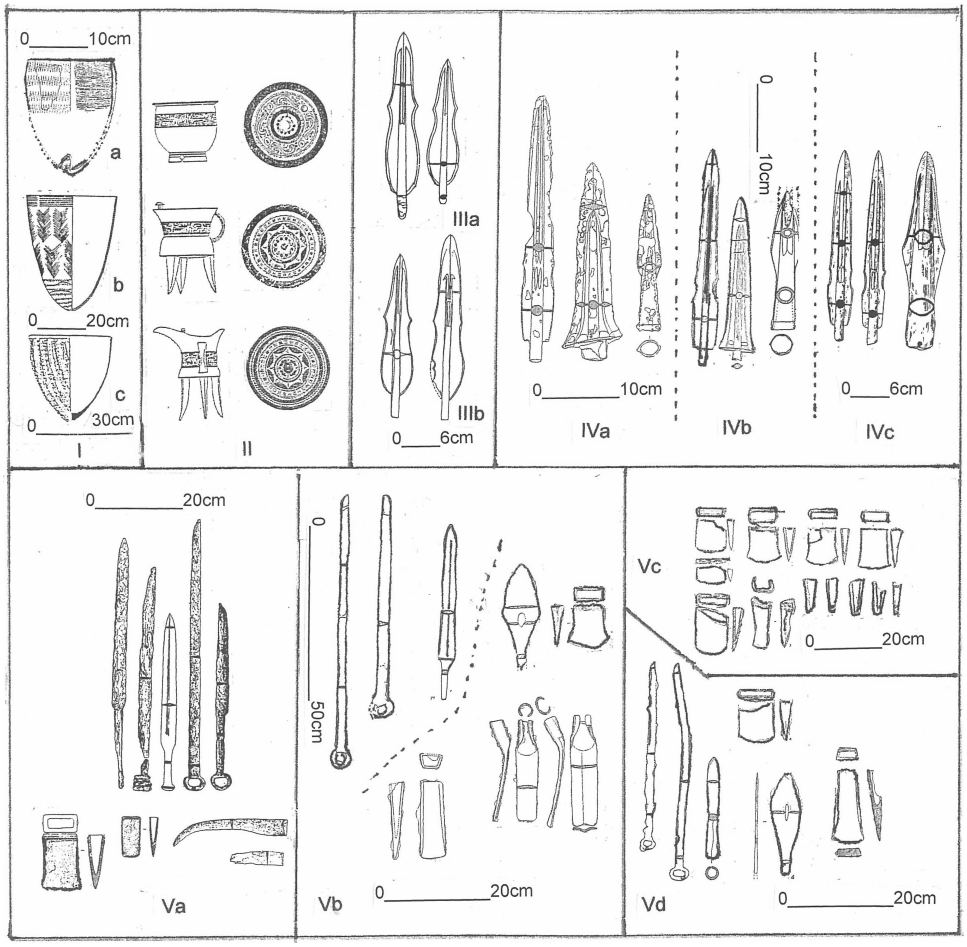

Fig. 10. Early pottery and metal implements of the Japan Sea Oikumene. I: Early pottery of Siberia, Korea, and Japan; II: Chinese bronzes; III: Liaoning bronzes of SW Manchuria and Korea; IV: Koreanized bronze implements of Korea, Japan, and eastern Siberia; V: Early iron implements of SW Manchuria, Korea, Eastern Siberia, and Japan.

bronze objects of the contemporary but much longer established Chinese aristocracy (Rhee et al. 2007:423, 430). Notably also, Korean bronze technology differed from that of nuclear China not only in its characteristic artifact types but also in chemical composition of the bronze alloy they were made of. In Chinese bronze casting, zinc was rarely added to the alloy, while in Korea it comprised up to 24 percent of the alloy compound in some cases. Zinc not only hardened the cutting edges of daggers and adzes but retarded corrosion of the alloy. Also, the bronze technicians varied their copper to lead ratios depending on the implements involved, suggesting that the Korean bronze technology was locally refined and perfected (K.-M. Lee 1992:138–142).

Iron tools first appeared as imports in Korea about 350 B.C. The first iron implements included spears and arrowheads for the warring elites, but also many practical tools for their retainers, including wedge-shaped axes, spades, hoes, sickles, needles, fishhooks, and semilunar knives. The initial iron tools, uncovered at Yongyeon-dong (Wiwon) in the northwest and Hogok (Musan) in the northeast, came from the Yen State of northeastern China, and were closely similar to the *Renhwabao* type of the Liaoning region.

Around 200 B.C. local iron smithing appeared in northern Korea, and by about 150 B.C. it was present in southern Korea. In a wrought iron workshop at Raeseong (in modern Busan), Korean smiths produced iron daggers, iron spearheads, iron chisels, iron hatchets, and flat rectangular iron plate "axes" (*pansang cheolbu*). At the same time, or shortly thereafter, cast iron technology was employed to produce heavy wedge-shaped axes (*joojo cheolbu*). The flat rectangular iron plate "axes" were made in quantity as raw material for wrought iron workshops where various agricultural and industrial implements were made, and some of the heavy wedge-shaped axes were also used. Agricultural implements included iron spades, rakes, and sickles. Han period wrought iron technology, available from the Chinese commanderies at Lelang and Taifeng after about 100 B.C., further facilitated local iron tool production, to include long swords, short knives with a round pommel, halberds, and arrow points of forged iron (Rhee et al. 2007).

As the Songguk-ni pattern grew rapidly throughout Korea over a period of several centuries, and competitive stresses grew among its communities, emigrants began crossing the Korean Strait into lightly populated Late Jomon Kyushu. The crossing itself was not a new feat, as much ceramic evidence from both sides of the strait shows that Chulmun and Jomon fishing and trading parties had been crossing back and forth for thousands of years. But a major and one-way flow of emigrants was new, a reflection of unprecedented demographic and sociopolitical pressures building in Korea. The emigrants brought a fully formed mixed agriculture of millet, rice, wheat, cows, chickens, their distinctive Mumun pottery, and incipient metallurgy. The early arrivals, thought to be mostly males, merged immediately with the long-established local Jomon hunter-gatherers, and the resultant society produced Japan's new Yayoi culture, which was growing apace by about 400 B.C., if not earlier (Rhee et al. 2007).

The large fortified and internally differentiated community of Yoshinogari in northern Kyushu is the most impressive example among the hundreds of Yayoi sites that demonstrate this Korean influx. Yoshinogari had its first beginnings about 300 B.C. and endured until about 300 A.D. Unmistakably a Korean outpost of the Songguk-ni type, it had a mixed Korean-Japanese population and sustained

close ties to the Korean Peninsula throughout its 600-year history of occupation (National Museum of Korea 2008; Nishitani 1989).

In Japan the earliest Liaoning bronzes—an arrowhead and a modified bronze dagger—are known from an Early Yayoi site at Imakawa in northern Kyushu (Goto 1987:106–108). The Bronze Age in ancient Japan seriously began, however, with the appearance of slender Koreanized bronze daggers around 200 B.C., during the Early/Middle Yayoi transition. Approximately 100 such daggers have been found in stone cists, wooden coffins, and jar burials, mostly in Kyushu, but also scattered up the Inland Sea coast of Honshu as far as Okayama. Other elements of the Korean bronze assemblage include multi-knobbed mirrors with fine linear geometric designs, spears, halberds, and small bells of the Korean *Ipsil-li* type. The latter are now recognized as quite clearly the prototypes of the distinctively Japanese *dotaku*, which in time became one of the most treasured components of Yayoi culture in the Kinki region (Iwanaga 1991:114–119; Satoshi 1994:157–179). *Ipsil-li* bells have been discovered at Itatsuke, Harada, Imajuku, and Ominami in Fukuoka, and at Biyu in Oita, while stone molds for casting such bells were also found at Otani and Sugu Okamoto in Fukuoka (Oda 1990:114–119).

The first Chinese bronzes arrived in Japan only after about 100 B.C., during the second half of the Middle Yayoi. Their presence increased as the emissaries of northern Kyushu chieftains returned with Han Chinese bronze mirrors and jade from the Chinese frontier garrisons and trading posts of Lelang and Taifeng in northwest Korea. Chinese mirrors flowed into Japan for centuries thereafter as symbols of status and items of gift exchange among chieftains, and soon came to be skillfully imitated by local artisans (Kobayashi 1976).

Iron implements first appeared in northern Kyushu in the Early Yayoi period, almost simultaneously with the Korean bronzes (Azuma 1999:417–438; Murakami 1998:83–92; Okuno 1991:250). For nearly 700 years thereafter, until the late 400s A.D., the Japanese archipelago depended on Korean iron for both weaponry and agricultural tools (Azuma 1999:438). Local smithing appeared for the first time in northern Kyushu in the early part of the Middle Yayoi and shortly thereafter in the western part of the Inland Sea. Using iron ingots and axe heads imported from Korea, local smiths—many of them Korean immigrants and refugees from centuries of incessant warfare between the competing armies of Paekche, Koguryo, Silla, and Kaya in their homeland—made farming and carpentry tools (sickles, adzes, hatchets, and chisels) as well as weapons (arrowheads, small knives, and halberds). Eventually iron sands were discovered and locally smelted in Japan, but highly crafted iron daggers, long swords with round pommels, spearheads, and certain kinds of arrowheads (stemmed and willow leaf–shaped) continued for centuries to be imported from southern Korea (Azuma 1999:121–138).

Iron figures strongly in the story of continued Korea-Japan interactions into the Kofun and Yamato periods. Around A.D. 250, the thriving Late Yayoi settlement at Makimuku in the Nara basin began to construct *zempo koen* mounded tombs for Japanese elites, ushering in the Kofun age, and by the Middle Kofun Period, C. A.D. 350, iron weapons and combat gear were critical in advancing the military and economic objectives of regional political elites then contending for

power. The importance of Korean iron is seen dramatically at the Yamato Rokugofun in Nara, dated around A.D. 450, which held 872 iron ingots, 134 iron sickles, 139 iron hoes, 102 iron axes, 284 small iron knives, and 9 iron arrowheads, among other items (Azuma 1999:152–163). Advanced iron technology was also essential to the expansion of paddy field agriculture, which provided the working wealth of the militarily active regional elites. The incorporation of Kibi, center of iron production in the Kansai region, was crucial to the house of Yamato's historic bid for supremacy in Japan.

Fundamental to the long process of political consolidation and cultural elaboration in Japan were immigrant Koreans who brought advanced knowledge and ability of various kinds to local power centers. Many skilled specialists in iron, ceramics, and other arts, including scripturally based religion and the art of reading and writing, came in the retinues of aristocratic families fleeing defeats in the warfare then endemic among competing Korean states. Such families, supported by their skilled servants and educated retainers, re-established themselves in Japanese elite society based on wealth and education gained in their homeland. Thus Korean immigrant families, many of them pioneers naturalized over hundreds of years' residence in Japan and others more recently departed from the Peninsula, became integral to the rising Yamato government's military, political, and cultural domination of Japan (Okuno 1993:5–8; Rhee et al. 2007:439–449). The influence of this history on the genetic makeup of the modern Japanese population was also far-reaching, as attested in an extensive physical anthropology literature (Hanihara 1991; Omoto and Saitou 1997).

CONCLUSIONS

Long-term cultural interactions within the Japan/East Sea Oikumene may be summarized in four main points. First, lithic technologies that incorporate blade and elongate flake production, microblades, and bifacial blades and points are shared throughout the area. The large blades, elongate flakes, and leaf-shaped bifaces appear before and during the maximal stage of the last glaciation about 24,000–20,000 B.P., with microblades and bifacial stemmed points appearing somewhat later and overlapping with a revolutionary new technology in the production of pottery vessels that begins to appear with the onset of postglacial warming.

Second, differing vessel formation techniques and design element trajectories reveal an ancient and multi-centered development of pottery containers across the Japan Sea Oikumene and southward into China. The new containers boosted the efficiency of both cooking and storing the products of early broad-spectrum hunting-fishing-gathering economies on the one hand, and later plant cultivating and stock raising economies on the other, as these spread throughout the Japan/East Sea Oikumene from southern and western centers of domestication.

Third, the rich Early Neolithic hunting-fishing-gathering traditions that grew up over the long early pottery period of the Russian Far East, Japan, and Korea were highly similar to one another in ecological and economic fundamentals, which stemmed from their similar climates and geographies. They were similar as well in their households and technologies, reflecting long-maintained interaction

and the diffusion of ideas over a vast territory. As a whole, they comprise a major world example of the high level of organizational stability and complexity achievable by hunting-gathering peoples.

Fourth, the trajectory of later-emerging bronze technologies in the Japan Sea Oikumene begins not from the China heartland, as once seemed to historians a logical surmise, but from the more distant Andron-Karasuk cultural area of southwestern Siberia and Central Asia, which influenced Liaoning in the northeast and from there the rest of the region. These bronzes, along with iron technology following soon after, provided tools for farmers and artisans, weaponry and military gear for increasingly powerful and competitive elite houses, and symbolic and sumptuary goods that reinforced the elite rulership statuses. The bronze and iron technologies thus fed into increasing agricultural production, industrial production, and social stratification throughout much of the region. Ultimately these socioeconomic processes intersected to generate regional polities across the Japan/East Sea Oikumene that could contend with the military and industrial might of China to the south and west. These northern polities also fought among themselves in pursuit of local interests, developing a character and organization distinctively their own that grew out of a regional landscape and history very different from that which brought forth the Chinese sociopolitical realm. The continuing long-term relationship between Korean and Japanese ruling elites, unusually well documented through a conjunction of ancient texts and sustained archaeological research, offers a strong model and guide for much needed further research into the seminal significance of inter-elite relationships within the Japan/East Sea Oikumene as a whole.

Apropos of the transition from archaeological to textual history, we note that the Japan/East Sea Oikumene was already millennia old as a well-defined culture-historical interaction sphere when it entered written history about 2000 years ago through mentions of its "barbarian" people in Han and later Chinese documents. These barbarians did not speak Chinese, or anything remotely akin to it, but instead languages of the Altaic family, ancient in the lands north, east, and west of China (Miller 1971). The regional peoples of Korea, the Russian Far East, and Japan had long been outsiders, but once brought within the penumbra of Chinese civilization their own growing social elites soon were avid for recognition by their glorious neighbors and moved rapidly to emulate their civilized symbols and practices.

The "Sinification" of Korea, Japan, and the Russian Far East, as well as Manchuria, began from diplomatic and exchange relationships sought by visitors to the Chinese border outposts at Lelang, Taifeng, and other places. More pervasive changes were played out, however, mainly in the context of strife and alliances among polities of the Japan Sea Oikumene itself. China sent armies on occasion, and did create several armed frontier garrison towns, but did not establish hegemony over the wider region of the Japan/East Sea Oikumene. Instead, Chinese and regionally competing groups came to know one other through centuries of alternating alliances, wars of attempted conquest, and interregnums, all learning a great deal in the process.

Around modern Pyongyang the early Korean state of Wiman Choson, predecessor of Koguryo, early entered into armed contention with China to keep its forces at bay, and for centuries afterward the neighboring Koguryo and Baekje

kingdoms strove almost ceaselessly with both one another and with regional Samhan, Silla, and Kaya polities farther south down the peninsula. Koguryo and its influences also extended well into the Russian Far East, until ultimately an alliance between Silla and Tang China crushed Silla's competitors and left it in control of a unified Korea while China came to control parts of the old Koguryo realm in Manchuria and the Russian Far East. Meanwhile alliance relationships between Baekje and Japanese elites, maintained with varying intensity throughout this era, ultimately shaped the cultural and political structure of historical Yamato Japan in fundamental ways. Throughout this history it was Chinese art, literature, science, and philosophy that were looked to by all of the leadership cadres as the proper intellectual and spiritual adornments of the rich and powerful, while the Chinese models of civil bureaucracy and state-sponsored religion were eagerly adopted by regional elites as tools useful in sustaining their control over the mass of ordinary people (Rhee et al. 2007).

We recapitulate in closing that the circulation of ideas and technologies throughout the zone we have labeled the Japan/East Sea Oikumene was first established in the Upper Palaeolithic, and continued through the age of pottery and the age of metals and into modern times. Political regimes have come and gone throughout the area during the period of written history, but the fundamental ecological, economic, and cultural connections that have long held the region together are older and deeper and far more lasting than any of those regimes.

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ENDNOTES

1. In Korea this is called the "East Sea," and in the body of this paper we frequently use the combined term, "Japan/East Sea."
2. It is important to note that in Kuzmin's chronology there is an overlap between the end of Upper Palaeolithic and the beginning of Neolithic. This may be because Neolithic is defined entirely by the presence of pottery, which initially appears within assemblages of otherwise Late Palaeolithic type; thus a Neolithic site where no pottery was used would be classified as Palaeolithic.

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ABSTRACT

Encircling the Sea of Japan, or East Sea in Korean terms, is a north-temperate landscape that includes thousands of miles of deeply indented seacoast, mountains, and plains, all covered by variously mixed woodlands. The Japanese archipelago comprises its eastern edge, fronting the Pacific Ocean, while the great Amur-Ussuri-Sungari riverine plain forms its far west. We perceive the region comprised by modern Korea, Japan, and the Russian Far East as a "Japan Sea Oikumene," and review culture-historical and environmental evidence to show that—contrary to earlier historical and archaeological impressions—the region has a long-lived ecological and technological unity as a distinctive "cultural world" that can be traced continuously from late Pleistocene into recent times.

To contextualize this "world" in comparative terms, we note that it is analogous in prominent ways to the Atlantic sides of both Europe and North America, feeling the cold of northern winters but also warmed by the currents of a southern ocean and having both coastal and deeply continental terrains. Like them also, it is a region of great biotic diversity and productivity where the species of northern and southern ranges overlap and hunting-fishing-gathering peoples developed prosperous, stable, and long-lived cultural traditions. All three of these north-temperate "cultural worlds" also saw their peoples relate increasingly over time to precocious southern lands "beyond," where husbandry, human numbers, and socioeconomic complexity grew on a steeper trajectory than they did farther north. Keywords: biotic diversity, stability, pithouses, pottery, interaction, trade.